[B] Choose the correct : -

1	The simplest form of the imaginary number $(i)^{73}$ = ... (a) -1 (b) 1 (c) i (d) $-i$ 2021 Exam (7) Question (25)
2	The simplest form of the imaginary number i^{-43} = ... (a) i (b) $-i$ (c) 1 (d) -1 2021 Exam (6) Question (5)
3	$(1-i)^{12}$ = ... (a) $-64\,i$ (b) $64\,i$ (c) -64 (d) 64 2021 Exam (7) Question (29)
4	The conjugate of the number $\left(3+\sqrt{-4}\right)$ is ..... (a) $-3-2\,i$ (b) $3+2\,i$ (c) $3-2\,i$ (d) $-3+2\,i$ 2021 Exam (10) Question (15)
5	The conjugate of the number $(2+i)^{-1}$ is ..... (a) $2+i$ (b) $2-1$ (c) $\frac{2-i}{5}$ (d) $\frac{2+i}{5}$ 2021 Exam (4) Question (10)
6	If $a = 5+\sqrt{3\,i}$, $b = 5-\sqrt{3\,i}$, then ab = ... (a) 28 (b) 25 (c) 21 (d) 7 2021 Exam (2) Question (1)
7	$\left(\sqrt{2}+i\right)^4\left(\sqrt{2}-i\right)^4$ = ... (a) 81 (b) 9 (c) $81\,i$ (d) $9\,i$ 2021 Exam (8) Question (1)
8	$(1+i)^4+(1-i)^4$ = ... (a) 0 (b) 8 (c) -8 (d) 4 2021 Exam (3) Question (3)
9	The simplest form of the expression $(1+i)^2+(1-i)(1+i)-2$ = ... (a) 2 (b) -2 (c) $2\,i$ (d) $-2\,i$ 2021 Exam (9) Question (3)

10	If $12 + 3\,a\,i = 4\,b - 27\,i$, then $(a , b) =$ ..... (a) $(4 , 3)$ (b) $(3 , 2.7)$ (c) $(-9 , 3)$ (d) $(9 , 3)$ 2021 Exam (5) Question (33)
11	If $2x - y + (x - 2y)\,i = 8 + i$, then $(x , y) =$ ..... (a) $(1 , 3)$ (b) $(3 , 1)$ (c) $(-3 , 1)$ (d) $(5 , 2)$ 2021 Exam (3) Question (4)
12	The simplest form of the number $\frac{1+i}{i}$ is ..... (a) $1 + i$ (b) $1 - i$ (c) $-1 - i$ (d) $-1 + i$ 2021 Exam (8) Question (12)
13	If $a + b\,i = \frac{5}{2+i}$, then $(a , b) =$ ..... (a) $(-2 , -1)$ (b) $(-2 , 1)$ (c) $(2 , -1)$ (d) $(2 , 1)$ 2021 Exam (9) Question (8)
14	If $(2 + i)(3 - 5\,i^5) = (x + y\,i)$, then $x + y =$ ..... (a) 4 (b) 5 (c) 6 (d) 7 2021 Exam (1) Question (32)
15	If $a + b\,i = \frac{2+i}{2-i}$, then $a^2 + b^2 =$ ..... (a) 1 (b) -1 (c) 2 (d) $-i$ 2021 Exam (6) Question (27)
16	The roots of the equation : $2x^2 - 5x + 3 = 0$ are ..... (a) rational real (b) not real (c) real and equal (d) irrational real 2021 Exam (10) Question (35)
17	The roots of the equation : $x^2 - 2\sqrt{5}\,x + 1 = 0$ are ..... (a) rational real. (b) not real. (c) real equal. (d) irrational real. 2021 Exam (7) Question (28)
18	The two roots of the equation : $x + \frac{36}{x} = 12$ where $x \neq 0$ are ..... (a) real and equal. (b) real and different. (c) complex and not real. (d) conjugate to each other. 2021 Exam (3) Question (6)

19 The solution set of the equation : $x^2 + 16 = 0$ in the set of complex number is .....

(a) $\{4i\}$ (b) $\{-4i\}$ (c) $\{4i , -4i\}$ (d) $\{4\}$

2021 Exam (1) Question (38)

20 If the curve of the function $f : f(x) = x^2 - 6x + m$ doesn't cut the x-axis , then $m \in$.....

(a) $\{9\}$ (b) $]9 , \infty[$ (c) $]-\infty , 9[$ (d) $[9 , \infty[$

2021 Exam (9) Question (19)

21 **In the opposite figure :**

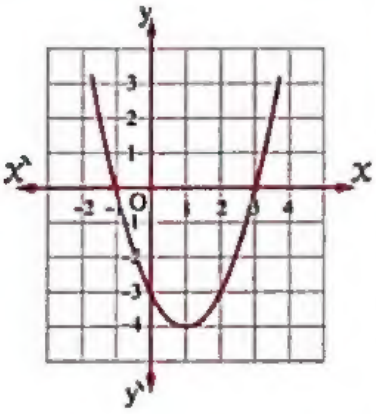
The curve of the function $f : f(x) = x^2 - 2x - 3$, then the solution set of the inequality $x^2 - 2x - 3 \geq 0$ in $\mathbb{R}$ is .....

(a) $]-1 , 3[$

(b) $]-\infty , 2[$

(c) $]3 , \infty[$

(d) $]-\infty , -1] \cup [3 , \infty[$



2021 Exam (10) Question (29)

22 The equation : $x^2 (x - 1)(x + 1) = 0$ of the ..... degree.

(a) first (b) second (c) third (d) fourth

2021 Exam (5) Question (26)

23 If the two roots of the equation : $4x^2 - 12x + c = 0$ are real and equal , then $c =$ .....

(a) 3 (b) 4 (c) 9 (d) 16

2021 Exam (7) Question (26)

24 If the two roots of the equation : $x^2 + (2k + 3)x + k^2 = 0$ are real and equal , then the value of $k =$ .....

(a) $\frac{3}{4}$ (b) $-\frac{3}{4}$ (c) $\frac{4}{3}$ (d) $-\frac{4}{3}$

2021 Exam (9) Question (1)

25 If the equation : $x^2 - 6x + m = 0$ has two equal real roots , then $m =$ .....

(a) 7 (b) 8 (c) 9 (d) 10

2021 Exam (2) Question (5)

26 If the two roots of the equation : $ax^2 + b = 0$ are real and different , then .....

(a) $ab > 0$ (b) $a = 0$ (c) $a > 0 , b > 0$ (d) $ab < 0$

	2021 Exam (4) Question (12)
27	If the two roots of the equation : $16x^2 - 8x + k = 0$ are complex and not real , then $k \in$ ..... (a) $]1 , \infty[$ (b) $]-\infty , 1[$ (c) $]-\infty , -1[$ (d) $]-\infty , -1]$ 2021 Exam (3) Question (5)
28	If the two roots of the equation : $(x-k)^2 + 4x = 0$ are additive inverse to each other , then k = ... (a) -2 (b) zero (c) 2 (d) 4 2021 Exam (1) Question (1)
29	If one of the two roots of the equation : $x^2 - (k+2)x + 3 = 0$ is the additive inverse of the other root , then k = ... (a) 3 (b) 2 (c) -2 (d) -3 2021 Exam (5) Question (22)
30	If one of the two roots of the equation : $kx^2 + (k-1)x - 3 = 0$ is the additive inverse of the other root , then k = ... (a) 3 (b) -3 (c) 1 (d) -1 2021 Exam (8) Question (3)
31	If one of the roots of the equation : $(m-3)x^2 + 5x + 7 = 0$ is the multiplicative inverse of the other , then m = ... (a) 10 (b) 3 (c) 8 (d) 2 2021 Exam (2) Question (12)
32	If one of the roots of the equation : $mx^2 - 3x + 1 = 0$ is multiplicative inverse of the other , then m = ... (a) -3 (b) -1 (c) 1 (d) 2 2021 Exam (1) Question (6)
33	If the product of two roots of the equation : $(k-2)x^2 - 6x + 12 = 0$ is 3 , then k = ... (a) 4 (b) 38 (c) 6 (d) zero 2021 Exam (6) Question (31)

34	The product of the roots of the equations : $a x^2 + b x + c = 0$, $b x^2 + c x + a = 0$, $c x^2 + a x + b = 0$ equals ..... (a) abc (b) -1 (c) 1 (d) zero 2021 Exam (4) Question (17)
35	If the sum of the two roots of the equation : $a x^2 + b x + c = 0$ equal the product of its the roots , then c = ... (a) $-a$ (b) $-b$ (c) a (d) b 2021 Exam (8) Question (11)
36	If $x = 5$ is a root of the equation : $x^2 + m x = 3m + 1$, then m = ... (a) -12 (b) 7 (c) $\frac{29}{3}$ (d) $\frac{-29}{3}$ 2021 Exam (3) Question (1)
37	If $(3 + i)$ is one of the roots of the equation $x^2 + k x + 10 = 0$ where the coefficient of its terms are real numbers , then k = ... (a) 6 (b) -6 (c) 9 (d) -9 2021 Exam (1) Question (27)
38	If 2 , 3 are the two roots of the equation : $x^2 + a x + b = 0$, then (a , b) = ... (a) (2 , 3) (b) (5 , 6) (c) $(-5 , -6)$ (d) $(-5 , 6)$ 2021 Exam (10) Question (19)
39	If the difference between the two roots of the equation : $x^2 - 7x + a = 0$ is 3 , then the value of a = ... (a) 4 (b) 2 (c) -4 (d) 10 2021 Exam (3) Question (9)
40	If m , $\frac{2}{m}$ are the roots of the equation $a x^2 + b x + 12 = 0$, then a = ... (a) 3 (b) 5 (c) 6 (d) 9 2021 Exam (4) Question (32)
41	If L , L^2 are the roots of the equation : $2 x^2 + b x + 54 = 0$, then b = ... (a) -12 (b) -24 (c) 6 (d) 9 2021 Exam (4) Question (18)

42	If L and 5 – L are the roots of the equation : $x^2 + m x + 6 = 0$, then m = ... (a) – 5 (b) 5 (c) 3 (d) 7 2021 Exam (2) Question (8)
43	If the two roots of the equation : $x^2 + b x + c = 0$ are two consecutive odd numbers , then the value of the expression $(b^2 - 4c)$ = ... (a) 1 (b) 2 (c) 3 (d) 4 2021 Exam (9) Question (14)
44	If the two roots of the equation : $8x^2 - k x + 3 = 0$ are positive and the ratio between them is 2 : 3 , then the value of k = ... (a) 10 (b) – 10 (c) $\frac{5}{4}$ (d) $\frac{-5}{4}$ 2021 Exam (3) Question (7)
45	If one of the two roots of the equation : $x^2 - 9x + c = 0$ is twice the other root , then c = ... (a) 9 (b) – 9 (c) 18 (d) – 18 2021 Exam (8) Question (5)
46	If L , M are the two roots of the equation : $x^2 + 3x - 4 = 0$, then LM = ... (a) 3 (b) – 3 (c) 4 (d) – 4 2021 Exam (7) Question (24)
47	If L and M are the two roots of the equation : $x^2 + 2x + 5 = 0$, then $L^2 M^2$ = ... (a) 5 (b) 10 (c) 25 (d) 4 2021 Exam (10) Question (40)
48	If L and M are the two roots of the equation : $x^2 - 4x + 2 = 0$ where L > M , then the numerical value of $(L^2 + M^2)$ = ... (a) 15 (b) 12 (c) 9 (d) 16 2021 Exam (10) Question (20)
49	If L , M are the two roots of the equation : $x^2 + 3x + 1 = 0$, then the value of the expression : $L^2 + 3LM + M^2$ = ... (a) 10 (b) – 10 (c) 9 (d) – 9 2021 Exam (9) Question (4)

50	If L , M are two roots of the equation : $x^2 - 21x + 4 = 0$, then $\sqrt{L} + \sqrt{M}$ = ... (a) 25 (b) 5 (c) -5 (d) ± 5 2021 Exam (5) Question (5)
51	If L and M are two roots of the equation : $x^2 - x - 2 = 0$ where $L > M$, then $2L + 5M^2$ = ... (a) 10 (b) 5 (c) 9 (d) 11 2021 Exam (1) Question (21)
52	If L and M are the roots of the equation : $x^2 - 6x + 2 = 0$, then $L^2 - 6L$ = ... (a) 2 (b) -2 (c) 4 (d) 3 2021 Exam (2) Question (7)
53	The quadratic equation whose terms coefficients are real numbers and one of its roots is $(2 - i)$ is ..... (a) $x^2 - 4x + 5 = 0$ (b) $x^2 + 4x - 5 = 0$ (c) $x^2 - 4x - 5 = 0$ (d) $x^2 + 4x + 5 = 0$ 2021 Exam (10) Question (33)
54	The quadratic equation whose two roots are $(2 - 3i)$, $(2 + 3i)$ is ..... (a) $x^2 + 4x + 13 = 0$ (b) $x^2 - 4x + 13 = 0$ (c) $x^2 + 4x - 13 = 0$ (d) $x^2 - 4x - 13 = 0$ 2021 Exam (5) Question (20)
55	The quadratic equation which its two roots are the two dimensions of the rectangle its area 12 cm^2 and its perimeter 14 cm. is ..... (a) $x^2 + 7x + 12 = 0$ (b) $x^2 - 7x + 12 = 0$ (c) $x^2 + 12x + 7 = 0$ (d) $x^2 - 12x + 7 = 0$ 2021 Exam (9) Question (7)
56	If L and M are the two roots of the equation : $x^2 - 7x + 3 = 0$, then the quadratic equation whose roots are 3L , 3M is ..... (a) $x^2 - 14x + 12 = 0$ (b) $x^2 + 14x + 12 = 0$ (c) $x^2 - 21x + 27 = 0$ (d) $x^2 + 14x - 12 = 0$ 2021 Exam (3) Question (8)

57	If L and M are the roots of the equation $X^2 - 3X = -5$, then the equation with roots L + 1 and M + 1 is ..... (a) $X^2 - 9X + 5 = 0$ (b) $X^2 - 5X + 9 = 0$ (c) $X^2 - 5X - 3 = 0$ (d) $X^2 + 3X + 5 = 0$ 2021 Exam (1) Question (28)
58	If L and M are two roots of the equation : $X^2 - 5X + 6 = 0$, then the equation whose roots are L – M , M – L is ..... (a) $X^2 + 1 = 0$ (b) $X^2 - 1 = 0$ (c) $X^2 + 25 = 0$ (d) $X^2 - X = 0$ 2021 Exam (6) Question (29)
59	The sign of $f : f(X) = -5$ is positive at $X \in$ ..... (a) $]-\infty , -5[$ (b) $]-5 , \infty[$ (c) $]-\infty , \infty[$ (d) $\varnothing$ 2021 Exam (7) Question (32)
60	The function f : where $f(X) = 2$ is positive in the interval ..... (a) $]-\infty , 2[$ (b) $[-2 , 2]$ (c) $]-\infty , \infty[$ (d) $]-\infty , -2[$ 2021 Exam (6) Question (23)
61	The function $f : [-3 , 8] \longrightarrow \mathbb{R}$ where $f(X) = 8 - 2X$ is positive in the interval ..... (a) $[-3 , 4[$ (b) $[-4 , 4]$ (c) $]-3 , 4[$ (d) $]-2 , 2[$ 2021 Exam (6) Question (33)
62	The function $f : f(X) = 7 - X$ is not negative where : (a) $X \geq 7$ (b) $X > 7$ (c) $X \leq 7$ (d) $X = 7$ 2021 Exam (8) Question (7)
63	If $[-3 , 2] \longrightarrow \mathbb{R}$, $f(X) = 3X + 6$, then the sign of the function f is negative in the interval ..... (a) $]-2 , \infty[$ (b) $[-3 , -2[$ (c) $]-\infty , -2[$ (d) $[-2 , 2]$ 2021 Exam (3) Question (10)
64	The sign of $f : f(X) = -X$ is negative at ..... (a) $X > -1$ (b) $X < -1$ (c) $X > 0$ (d) $X < 0$ 2021 Exam (10) Question (17)
65	The sign of the function $f : f(X) = 8 - 4X$ is not positive when ..... (a) $X \geq 2$ (b) $X > 2$ (c) $X < 2$ (d) $X \leq 2$

	2021 Exam (9) Question (18)
66	If the sign of $f(x) = kx - 10$ is positive on the interval $]5 , \infty[$ and nagative on the interval $]-\infty , 5[$, then $k =$ ..... (a) 5 (b) -2 (c) 2 (d) -10 2021 Exam (1) Question (2)
67	If $f(x) = x^2 + 9$, then the solution set of the inequality $f(x) \leq 0$ in $\mathbb{R}$ is ..... (a) $\{-3 , 3\}$ (b) $]3 , \infty[$ (c) $]-\infty , 3]$ (d) $\varnothing$ 2021 Exam (1) Question (36)
68	The function $f : f(x) = (3 - x)^2$ is positive for all $x \in$ ..... (a) $]3 , \infty[$ (b) $]-\infty , 3[$ (c) $\mathbb{R} - \{3\}$ (d) $]-3 , 3[$ 2021 Exam (8) Question (8)
69	The function $f : f(x) = -(x - 1)(x + 2)$ is positive in the interval ..... (a) $]1 , 2[$ (b) $[-1 , 2]$ (c) $]-2 , 1[$ (d) $]-\infty , \infty[$ 2021 Exam (4) Question (25)
70	If the function $f : f(x) = ax^2 + bx + c$ and $a < 0$ and the two roots of the equation $f(x) = 0$ are $2 , -5$, then the function f is positive in ..... (a) $\{-5 , 2\}$ (b) $\mathbb{R} -]-5 , 2[$ (c) $]-5 , 2[$ (d) $[-5 , 2]$ 2021 Exam (10) Question (9)
71	If the function $f : f(x) = ax^2 + bx + c$, $a > 0$ and the two roots of $f(x) = 0$ are $2 , -5$, then the function f is positive in ..... (a) $\{-5 , 2\}$ (b) $\mathbb{R} -]-5 , 2[$ (c) $]-5 , 2[$ (d) $\mathbb{R} - [-5 , 2]$ 2021 Exam (3) Question (11)
72	Which of the following functions is positive for all values of $x \in \mathbb{R}$: (a) $f : f(x) = x^2 + 4$ (b) $f : f(x) = (x - 1)^2 + 9$ (c) $f : f(x) = 3$ (d) all of (a) , (b) , (c) 2021 Exam (4) Question (29)
73	The function $f : f(x) = x^2 - 9$ is negative at $x \in$ ..... (a) $\mathbb{R} - [-3 , 3]$ (b) $]-3 , 3[$ (c) $]-\infty , -9[$ (d) $]-\infty , -3[$ 2021 Exam (10) Question (6)

74	The function f where $f(x) = (x-1)(x+3)$ is negative in the interval ..... (a) $]-3, 1[$ (b) $]-1, 3[$ (c) $[-3, -1]$ (d) $]-3, 3[$ 2021 Exam (6) Question (22)
75	If L , M are the two roots of the equation : $a x^2 + b x + c = 0$ where $a > 0$, $L < M$, then the solution set of the inequality : $a x^2 + b x + c < 0$ is ..... (a) $]-\infty, L[$ (b) $]L, M[$ (c) $]M, \infty[$ (d) $\mathbb{R} - [L, M]$ 2021 Exam (7) Question (30)
76	The function which has a positive sign in $\mathbb{R} - \{2\}$ is $f(x) =$ ..... (a) $(x-2)(x+2)$ (b) $x^2 - 4x + 4$ (c) $x - 2$ (d) $(x+2)^2$ 2021 Exam (1) Question (7)
77	If the discriminant of the equation : $a x^2 + b x + c = 0$ is negative , then the solution set of the inequality : $a x^2 + b x + c < 0$, where $a < 0$ in $\mathbb{R}$ is ..... (a) $\mathbb{R}$ (b) $\varnothing$ (c) $\mathbb{R}^+$ (d) $\mathbb{R}^-$ 2021 Exam (5) Question (15)
78	The two functions f : $f(x) = (x-1)(x+2)$ and g : $g(x) = -x^2 + 9$ are positive together when $x \in$ ..... (a) $]1, 3[\cup]-3, -2[$ (b) $]-2, 0[$ (c) $]3, \infty[\cup]-\infty, -3[$ (d) $]-3, 3[$ 2021 Exam (5) Question (18)
79	If $(y-4)^2 = 36$, $y < 0$, then $y + 4 =$ ..... (a) -2 (b) 2 (c) 10 (d) 14 2021 Exam (4) Question (1)
80	Which of the following does not belong to the solution set of the inequality : $3x - 5 \geq 4x - 3$? (a) -1 (b) -2 (c) -3 (d) -5 2021 Exam (5) Question (13)
81	The solution set of the inequality : $x^2 \geq 4x + 21$ in $\mathbb{R}$ is ..... (a) $[-3, 7]$ (b) $\mathbb{R} -]-3, 7[$ (c) $\mathbb{R} - \{-3, 7\}$ (d) $\{7\}$ 2021 Exam (8) Question (9)

82 S.S. of the inequality : $9 - x^2 \geq 0$ is .....

(a) $]-3 , 3[$ (b) $[-3 , 3]$ (c) $\mathbb{R} -]-3 , 3[$ (d) $\mathbb{R} - [-3 , 3]$

2021 Exam (2) Question (10)

83 The solution set of the inequality : $4x - x^2 - 4 < 0$ in $\mathbb{R}$ is .....

(a) $\mathbb{R}$ (b) $\mathbb{R}^+$ (c) $\mathbb{R}^-$ (d) $\mathbb{R} - \{2\}$

2021 Exam (5) Question (40)

84 The solution set of the inequality : $x(x + 3) < 0$ in $\mathbb{R}$ is .....

(a) $\{0 , -3\}$ (b) $]-3 , 2]$ (c) $[-3 , 0[$ (d) $]-3 , 0[$

2021 Exam (6) Question (19)

85 The solution set of the inequality : $(x - 3)(x - 4) > 0$ in $\mathbb{R}$ is .....

(a) $\{3 , 4\}$ (b) $]3 , 4[$ (c) $[3 , 4]$ (d) $\mathbb{R} - [3 , 4]$

2021 Exam (3) Question (12)

86 The solution set of the inequality : $-x(x + 2) \geq 0$ in $\mathbb{R}$ is .....

(a) $\{0 , -2\}$ (b) $[-2 , 0]$ (c) $]-2 , 0[$ (d) $[-2 , 2]$

2021 Exam (4) Question (31)

87 The solution set of the inequality : $(2x - 3)^2 > -5$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\mathbb{R}^+$ (c) $\mathbb{R}^-$ (d) $\mathbb{R}$

2021 Exam (9) Question (10)

88 **In the opposite figure :**

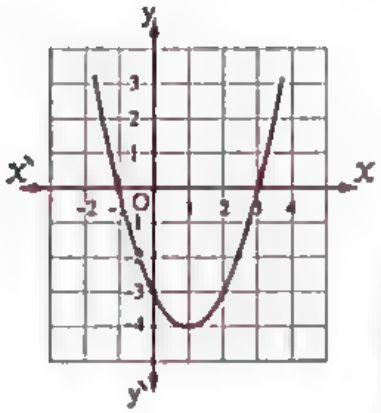
The curve of the function f : $f(x) = x^2 - 2x - 3$, then the solution set of the inequality $x^2 - 2x - 3 \geq 0$ in $\mathbb{R}$ is .....

(a) $]-1 , 3[$

(b) $]-\infty , 2[$

(c) $]3 , \infty[$

(d) $]-\infty , -1] \cup [3 , \infty[$



2021 Exam (10) Question (29)

89	The angle of measure 2109° lies in the ..... quadrant. (a) first (b) second (c) third (d) fourth 2021 Exam (3) Question (13)
90	The angle whose measure is (– 850°) lies in the ..... quadrant. (a) first (b) second (c) third (d) fourth 2021 Exam (6) Question (14)
91	The angle whose measure is 600° in the standard position is equivalent to the angle of measure .....° (a) 120 (b) 240 (c) 300 (d) 420 2021 Exam (10) Question (2)
92	The angle whose measure is 120° in the standard position is equivalent to the angle of measure ..... (a) 420° (b) 240° (c) – 300° (d) – 240° 2021 Exam (8) Question (33)
93	All the angles of the following measures lies in the second quadrant except ..... (a) – 240° (b) – 120° (c) 100° (d) 860° 2021 Exam (4) Question (4)
94	The degree measure of the angle of measure $\frac{7\pi}{6}$ is ..... (a) 105° (b) 210° (c) 420° (d) 840° 2021 Exam (8) Question (35)
95	The angle of measure $\frac{-9\pi}{4}$ lies in the ..... quadrant. (a) first (b) second (c) third (d) fourth 2021 Exam (10) Question (27)
96	The radian measure of the central angle opposite to an arc of length 6 cm. in a circle of diameter length 12 cm. is ..... (a) $\left(\frac{1}{2}\right)^{rad}$ (b) $(1)^{rad}$ (c) $(3)^{rad}$ (d) $(\pi)^{rad}$ 2021 Exam (2) Question (13)

97 A radian and degree measure of a central angle subtends an arc whose length 3 cm. in a circle whose surface area is 16π cm^2 = ... , ...

(a) 1^{rad} , $180°$ (b) 1.5^{rad} , $86°$

(c) 1.75^{rad} , $90°$ (d) 0.75^{rad} , $42° 58'$

2021 Exam (5) Question (3)

98 The arc of length 5π cm. in a circle with radius length 15 cm. is opposite to central angle of measure .....°

(a) 30 (b) 60 (c) 90 (d) 180

2021 Exam (4) Question (2)

99 The arc length in a circle of radius 6 cm. , opposite to central angle of measure $\frac{\pi}{2}$ is .....

(a) $\frac{3\pi}{2}$ (b) 2π (c) $\frac{5\pi}{2}$ (d) 3π

2021 Exam (7) Question (33)

100 In a circle of diameter length 24 cm. the length of the arc subtended by a central angle of measure 30° equals ..... cm.

(a) 2π (b) 3π (c) 4π (d) π

2021 Exam (6) Question (15)

101 The string length of a simple pendulum is 14 cm. swings in an angle of measure $\frac{\pi}{10}$, then its arc length ≈ ..... cm.

(a) 4.4 (b) 4.6 (c) 4.8 (d) 4.9

2021 Exam (4) Question (20)

102 The central angle with measure 120° and includes an arc with length ℓ cm. in a circle with radius 6 cm. , then ℓ ≈ ..... cm.

(a) 12.57 (b) 10 (c) 125.4 (d) 1.254

2021 Exam (1) Question (11)

103 If the length of an arc in a circle equals $\frac{5}{8}$ of its circumference , then the measure of the central angle subtending to this arc in degrees equals .....

(a) 30° (b) $67° 30'$ (c) 225° (d) 240°

2021 Exam (3) Question (14)

104

If the ratio between measures of the interior angles of a quadrilateral is 5 : 4 : 9 : 6 , then the measure of the smallest angle equals .....

(a) $\frac{\pi}{12}$ (b) $\frac{\pi}{3}$ (c) $\frac{5\pi}{12}$ (d) $\frac{2\pi}{3}$

2021 Exam (4) Question (22)

105

Measure of the central angle subtends an arc whose length equals the diameter of the circle = ...° (Rounded to the nearest degree).

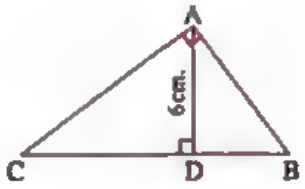
(a) 113 (b) 115 (c) 120 (d) 180

2021 Exam (5) Question (6)

106

In the opposite figure :

If AD = 6 cm. , $\tan B + \tan C = \frac{5}{3}$, then BC = ... cm.



(a) 6 (b) 8

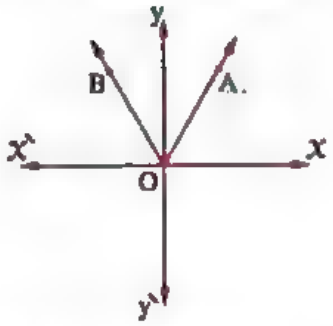
(c) 10 (d) 14

2021 Exam (4) Question (23)

107

In the opposite figure :

If $A(1, \sqrt{3})$, $B(-1, \sqrt{3})$, then cot (∠ AOB) = ...



(a) 1 (b) $\frac{1}{2}$

(c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{3}$

2021 Exam (5) Question (28)

108

If ABCD is a cyclic quadrilateral and $\sin A = \frac{3}{5}$, then sin C = ...

(a) $\frac{3}{5}$ (b) $\frac{-3}{5}$ (c) $\frac{4}{5}$ (d) $\frac{-4}{5}$

2021 Exam (4) Question (26)

109

$\tan^{-1}\left(\frac{1}{\sqrt{3}}\right) + \cot^{-1}\left(\sqrt{3}\right) =$ .....

(a) $\frac{\pi}{3}$ (b) $\frac{\pi}{2}$ (c) $\frac{3\pi}{2}$ (d) $\frac{\pi}{6}$

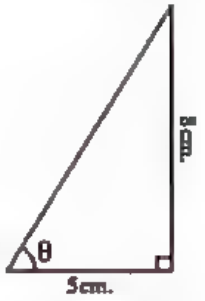
2021 Exam (4) Question (35)

110 In the opposite figure :

θ^{rad} = ...

(a) 1.5^{rad} (b) 1.012^{rad}

(c) 2^{rad} (d) 3^{rad}



2021 Exam (10) Question (39)

111 If sec 3 θ = 2 where θ is an acute angle , then θ = ...°

(a) 10 (b) 15 (c) 20 (d) 30

2021 Exam (7) Question (38)

112 If $\sin\theta = -\frac{1}{2}$, $\cos\theta = \frac{\sqrt{3}}{2}$, then θ = ...°

(a) 30 (b) 150 (c) 210 (d) 330

2021 Exam (7) Question (39)

113 If sin θ = – 1 , cos θ = 0 , then the measure of angle θ = ...

(a) $\frac{\pi}{2}$ (b) π (c) $\frac{3\pi}{2}$ (d) 2π

2021 Exam (6) Question (4)

114 If the terminal side of angle θ in its standard position cut the unit circle at the point $\left(-\frac{\sqrt{3}}{2}, y\right)$ where $y \in \mathbb{R}^+$, then θ = ...°

(a) 30 (b) 150 (c) 210 (d) 330

2021 Exam (9) Question (20)

115 If the terminal side of the angle θ in its standard position , cuts the unit circle at point $\left(\frac{3}{5}, y\right)$ where y > 0 , then tan (θ) = ...

(a) $\frac{4}{3}$ (b) $\frac{3}{4}$ (c) $\frac{5}{4}$ (d) 1

2021 Exam (1) Question (12)

116 If $\mathcal{X} \sin\frac{\pi}{4}\cos\frac{\pi}{4} = \tan^2\frac{\pi}{4} + \cos^2\frac{\pi}{3}$, then $\mathcal{X}$ = ...

(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{5}{2}$ (c) $\frac{2}{\sqrt{3}}$ (d) $\frac{-1}{\sqrt{2}}$

2021 Exam (3) Question (15)

117 If $\cos\alpha = \frac{-3}{5}$, $90° < \alpha < 180°$, $5\sin\alpha + 3\tan\alpha =$ .....

(a) 0 (b) 1 (c) – 1 (d) 2

2021 Exam (2) Question (20)

118 If $\theta \in]\frac{\pi}{2}, \pi[$, $\sin\theta = \frac{12}{13}$, then the value of : $\tan\theta\cot\theta + \cos^2\theta =$ .....

(a) $\frac{25}{169}$ (b) $\frac{194}{169}$ (c) $\frac{25}{144}$ (d) $\frac{169}{25}$

2021 Exam (3) Question (16)

119 If $\sin(\theta + 10°) = \frac{1}{2}$ where $\theta \in]0°, \frac{\pi}{2}[$, then m ($\angle\theta$) = ...

(a) 20° (b) 60° (c) 90° (d) 180°

2021 Exam (8) Question (37)

120 If $\cos^2\theta = \frac{9}{25}$ where $90° < \theta < 180°$, then the value of : $25\sin\theta + 4\cot\theta =$ .....

(a) 23 (b) 17 (c) – 17 (d) – 23

2021 Exam (3) Question (20)

121 $\cos(-30°) =$ .....

(a) $-\sqrt{3}$ (b) $-\frac{\sqrt{3}}{2}$ (c) $\frac{2}{\sqrt{3}}$ (d) $\frac{\sqrt{3}}{2}$

2021 Exam (8) Question (39)

122 $\tan 495° =$ .....

(a) 1 (b) – 1 (c) $\frac{\sqrt{2}}{2}$ (d) $\frac{1}{2}$

2021 Exam (1) Question (17)

123 $\frac{\tan 65°}{\cot 25°} =$ .....

(a) 1 (b) 2 (c) $\frac{1}{2}$ (d) 3

2021 Exam (2) Question (17)

124 If θ is a positive acute angle , $\frac{\sin(\theta + 10°)}{\cos(40°)} = 1$, then $\theta =$ .....°

(a) 40 (b) 50 (c) 10 (d) 70

2021 Exam (1) Question (26)

125 $\frac{\sin 56°}{\cos 34°} + \tan 35°\cot 35° =$ .....

(a) – 2 (b) zero (c) 1 (d) 2

2021 Exam (9) Question (6)

126 The simplest form of the expression : $\cos(180° + \theta) + \sin(90° + \theta) =$ .....

(a) $2 \sin\theta$ (b) $2 \cos\theta$ (c) 2 (d) zero

2021 Exam (9) Question (2)

127 $2 \sin(360° - \theta) + 3 \sin(-\theta) + 6 \cos(270° + \theta) =$ .....

(a) zero (b) $7 \sin\theta$ (c) $11 \sin\theta$ (d) $\sin\theta$

2021 Exam (9) Question (11)

128 $\tan(180° + \theta) \times \cot\theta =$ .....

(a) zero (b) -1 (c) $\cot\theta$ (d) 1

2021 Exam (10) Question (34)

129 In a right-angled triangle , measure of one of its acute angles is $\mathcal{X}°$ where $\sin\mathcal{X} = \frac{4}{5}$, then $\cos(90° - \mathcal{X}°) =$ .....

(a) $\frac{3}{5}$ (b) $\frac{-3}{5}$ (c) $\frac{-4}{5}$ (d) $\frac{4}{5}$

2021 Exam (5) Question (12)

130 If $A + B = 90°$ and $\tan A = \frac{1}{3}$, then $\tan B =$ .....

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) 1 (d) 3

2021 Exam (4) Question (8)

131 The value of θ where $0 \leq \theta \leq 90°$ which satisfies : $\tan(\theta + 20°) = \cot(3\theta + 30°)$ from the following is .....

(a) 40 (b) 10 (c) 90 (d) 50

2021 Exam (7) Question (36)

132 If $\sin 3\theta = \cos 6\theta$, $0° < \theta < 90°$, then $\theta =$ .....

(a) 10° (b) 15° (c) 20° (d) 25°

2021 Exam (2) Question (19)

133 If $\sin(3\theta - 25°) = \cos(2\theta - 35°)$, where $0° < \theta < 45°$, then the value of $\sin(180° - \theta) =$ .....

(a) $\frac{1}{3}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

2021 Exam (9) Question (9)

134 If $\sin 2\theta = \cos\theta$, then the general solution of the equation = ...

(a) $\frac{\pi}{6} + \frac{2}{3}\pi$ n only (b) $\frac{\pi}{2} + 2\pi$ n only

(c) (a) , (b) together. (d) nothing of the previous.

2021 Exam (10) Question (25)

135 If $\tan(180° + 5\theta) + \tan(270° + 4\theta) = 0$ where $\theta \in]0 , \frac{\pi}{2}[$, then m ($\angle\theta$) = ...°

(a) 10 (b) 20 (c) 60 (d) 45

2021 Exam (5) Question (9)

136 If $\cos(270° - \theta) = \frac{-1}{2}$ where θ is the measure of the smallest positive angle , then θ = ...°

(a) 30 (b) 150 (c) 210 (d) 330

2021 Exam (3) Question (17)

137 The terminal side of angle θ in standard position intersects the unit circle at point B $\left(\frac{4}{5} , \frac{3}{5}\right)$, then the value of the expression $\sin(90° + \theta) + \cot(180° + \theta)\cos(90° + \theta)$ = ...

(a) zero (b) $\frac{5}{8}$ (c) $\frac{8}{5}$ (d) $\frac{4}{5}$

2021 Exam (10) Question (37)

138 If $\sin\theta = \frac{3}{5}$, θ is positive acute angle , then value of : $\sin(180° - \theta)\sin(90° + \theta)$ = ...

(a) $\frac{12}{25}$ (b) $-\frac{12}{25}$ (c) $\frac{9}{25}$ (d) $\frac{16}{25}$

2021 Exam (2) Question (18)

139 If $f(x) = \cos 6\theta$, then the range of the function is .....

(a) $[-6 , 6]$ (b) $[-1 , 1]$ (c) $[1 , 6]$ (d) $]-1 , 1[$

2021 Exam (3) Question (19)

140 Range of the function f where $f(\theta) = \frac{1}{2}\sin 3\theta$ is .....

(a) $\left[-\frac{1}{2} , \frac{1}{2}\right]$ (b) $[-2 , 2]$ (c) $\left[-\frac{3}{2} , \frac{3}{2}\right]$ (d) $[-3 , 3]$

2021 Exam (2) Question (16)

141 The range of the function f : $f(x) = 3\sin 2x$ is .....

(a) $[-2 , 2]$ (b) $]-2 , 2[$ (c) $[-3 , 3]$ (d) $]-3 , 3[$

2021 Exam (7) Question (34)

142 The range of the function $f : f(x) = 3 \sin\theta$ where $\pi < \theta < 2\pi$ is .....

(a) $[-3 , 3]$ (b) $[-3 , 0]$ (c) $[0 , 3]$ (d) $\mathbb{R}$

2021 Exam (9) Question (15)

143 If the range of the function $f : f(x) = a \sin(x)$ where $x \in [0 , 2\pi]$ is $[-5 , 5]$, then $a \in$.....

(a) $\{5\}$ (b) $\{-5\}$ (c) $]-5 , 5[$ (d) $\{-5 , 5\}$

2021 Exam (1) Question (37)

144 If $\theta = \sin^{-1} 0.6$ where θ is the measure of the smallest positive angle , then θ = ...

(a) $36° 52\grave{}$ (b) $52° 36\grave{}$ (c) $120° 33\grave{}$ (d) $40° 15\grave{}$

2021 Exam (6) Question (10)

145 If the lengths of two corresponding sides of two similar triangles are 7 cm. , 11 cm. , then the ratio between their perimeters is .....

(a) $\frac{49}{121}$ (b) $\frac{7}{18}$ (c) $\frac{7}{11}$ (d) $\frac{11}{18}$

2021 Exam (4) Question (15)

146 If k is the similarity factor of polygon P_1 to polygon P_2 and $0 < k < 1$, then the polygon P_1 is ..... to polygon P_2

(a) congruent (b) an enlargement (c) a shrinking (d) twice the area

2021 Exam (4) Question (5)

147 If polygon m_1 is minimize of polygon m_2 , with scale factor k , then .....

(a) $k > 1$ (b) $k < 1$ (c) $k = 1$ (d) $0 < k < 1$

2021 Exam (9) Question (39)

148 The rhombus in which measure of one of its angles 70° is similar to the rhombus which measure of one of its angles = ...

(a) 100° (b) 110° (c) 120° (d) 130°

2021 Exam (8) Question (15)

149 The polygon ABCD ~ the polygon XYZL , AB = 32 cm. , BC = 40 cm. , XY = 3 m – 1 , YZ = 3 m + 1 , then the numerical value of m = ...

(a) 3 (b) 4 (c) 5 (d) 6

2021 Exam (5) Question (36)

150 Two regular pentagon polygons the side length of the first = 5 cm. and the perimeter of the second = 30 cm. , then the ratio between side length of the first : the side length of the second = ...

(a) 1 : 6 (b) 1 : 2 (c) 1 : 5 (d) 5 : 6

2021 Exam (8) Question (16)

151 Two similar rectangles , the length of the first is three times its width , if the length of the second 12 cm. , then its width = ... cm.

(a) 2 (b) 3 (c) 4 (d) 6

2021 Exam (8) Question (32)

152 The dimensions of a rectangle are 10 cm. , 6 cm. if the scale factor equals 3 , then the perimeter of another of rectangle similar to it = ... cm.

(a) 96 (b) 69 (c) 15 (d) 30

2021 Exam (10) Question (4)

153 All ..... are similar.

(a) triangles (b) rectangles (c) squares (d) parallelograms

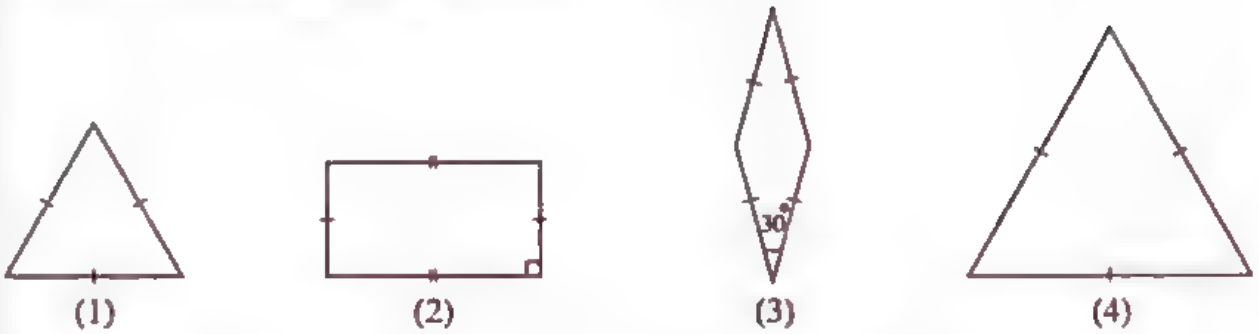
2021 Exam (7) Question (6)

154 If the polygon ABCD ~ polygon XYZL , then AB × ZL = XY × .....

(a) ZL (b) AC (c) BC (d) CD

2021 Exam (6) Question (1)

155 Which of the following polygons are similar ?



(1) (2) (3) (4)

(a) Polygons (1) , (2) (b) Polygons (1) , (3)

(c) Polygons (1) , (4) (d) Polygons (3) , (4)

2021 Exam (3) Question (38)

156 Which of the following two polygons are similar ?

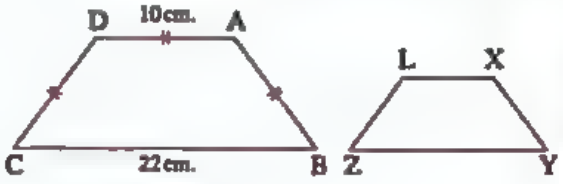
(1) (2) (3) (4)

(a) polygons (1) , (2)
(b) polygons (3) , (1)
(c) polygons (3) , (4)
(d) polygons (2) , (4)

2021 Exam (10) Question (1)

157 **In the opposite figure :**

If ABCD ~ XYZL , the perimeter of the figure XYZL = 26 cm. , AD = 10 cm. , BC = 22 cm. , AB = AD = DC , then $\frac{AD}{XL}$ = ...



(a) 1 : 2 (b) 2 : 3 (c) 3 : 4 (d) 2 : 1

2021 Exam (8) Question (14)

158 **In the opposite figure :**

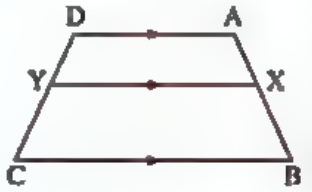
If $\overline{AD}$ // $\overline{XY}$ // $\overline{BC}$, AX = YC , XB = 8 cm. , DY = 2 cm. , then AX = ... cm.

(a) 2 (b) 4
(c) 16 (d) 8

2021 Exam (8) Question (23)

159 **In the opposite figure :**

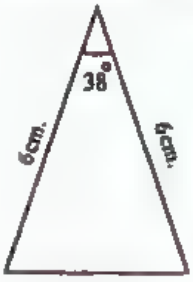
$\overline{AD}$ // $\overline{XY}$ // $\overline{BC}$, AX : XB = 2 : 3 , CD = 15 cm. , then DY = ... cm.



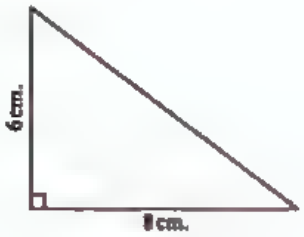
(a) 3 (b) 4
(c) 5 (d) 6

2021 Exam (9) Question (34)

160 Which two triangles of the following are similar ?

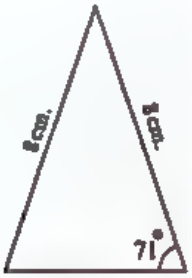


(1)



(2)

(3)



(4)

(a) ΔΔ (1) , (2) (b) ΔΔ (2) , (3) (c) ΔΔ (3) , (4) (d) ΔΔ (1) , (4)

2021 Exam (8) Question (13)

161 If Δ ABC ~ Δ XYZ , and 2 AB = 3 XY , then the perimeter of Δ ABC : the perimeter of Δ XYZ = ...

(a) 4 : 9 (b) 9 : 4 (c) 2 : 3 (d) 3 : 2

2021 Exam (9) Question (28)

162 A triangle in which two angles are of measures 50° , 70° is similar to a triangle in which two angles are measures 50° , ...°

(a) 60 (b) 80 (c) 55 (d) 40

2021 Exam (5) Question (24)

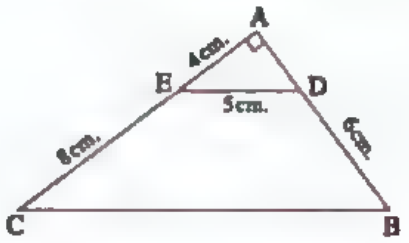
163 **In the opposite figure :**

Δ ABC is right-angled at A

, then BC = ... cm.

(a) 15 (b) 20

(c) 13 (d) 21



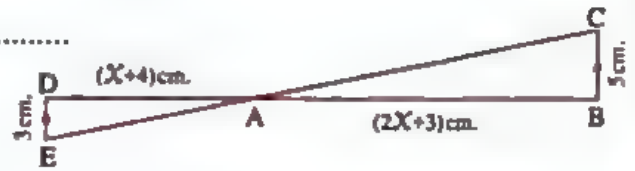
2021 Exam (2) Question (27)

164 **In the opposite figure :**

Δ ABC ~ Δ ADE , then the value of X = ...

(a) 11 (b) 1

(c) 12 (d) 10



2021 Exam (3) Question (21)

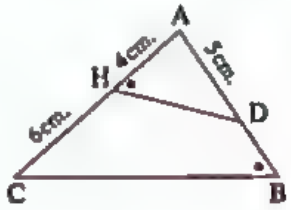
165 **In the opposite figure :**

$m(\angle AHD) = m(\angle ABC)$, $AD = 5$ cm.

, $AH = 4$ cm. , $HC = 6$ cm. , then $DB =$ .....

(a) 5 (b) 4

(c) 3 (d) 8



2021 Exam (1) Question (39)

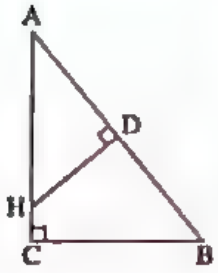
166 **In the opposite figure :**

$\Delta ABC \sim \Delta AHD$ and if $m(\angle B) = 3x + 10°$

and $m(\angle AHD) = x + 30°$, then $m(\angle A) =$ .....°

(a) 50 (b) 40

(c) 30 (d) 60



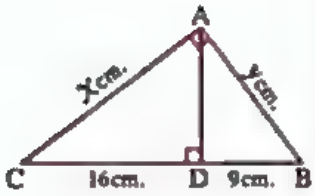
2021 Exam (4) Question (6)

167 **In the opposite figure :**

$\frac{y}{x} =$ .....

(a) $\frac{4}{3}$ (b) $\frac{3}{4}$

(c) $\frac{16}{9}$ (d) $\frac{9}{16}$



2021 Exam (10) Question (16)

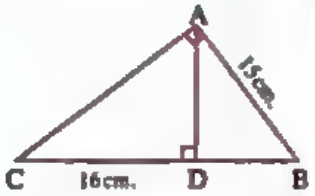
168 **In the opposite figure :**

ABC is a right-angled triangle at A , $\overline{AD} \perp \overline{BC}$

, then AD = ... cm.

(a) 18 (b) 25

(c) 12 (d) 20



2021 Exam (3) Question (22)

169 **In the opposite figure :**

$x =$ ..... cm.

(a) 6 (b) 7

(c) 5 (d) 8

2021 Exam (2) Question (38)

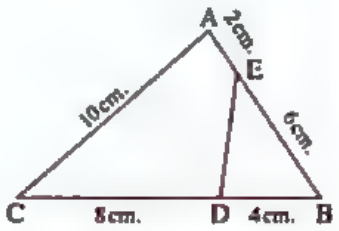
170 **In the opposite figure :**

If EB = 6 cm. , CD = 8 cm. , AC = 10 cm.

, AE = 2 cm. , DB = 4 cm. , then ED = ... cm.

(a) 2 (b) 4

(c) 3 (d) 5



2021 Exam (6) Question (3)

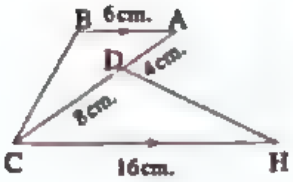
171 **In the opposite figure :**

AD = 4 cm. , CH = 16 cm. , AB = 6 cm. , DC = 8 cm.

, then $\frac{HD}{BC}$ = ...

(a) $\frac{4}{3}$ (b) $\frac{3}{4}$

(c) $\frac{2}{3}$ (d) $\frac{1}{2}$



2021 Exam (5) Question (7)

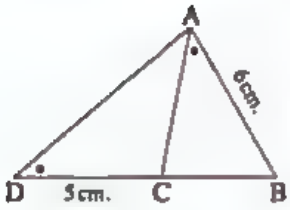
172 **In the opposite figure :**

If m (∠ BAC) = m (∠ D) , AB = 6 cm.

, DC = 5 cm. , then BC = ... cm.

(a) 6 (b) 9

(c) 10 (d) 4



2021 Exam (6) Question (8)

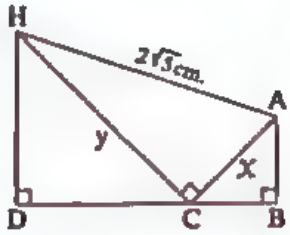
173 **In the opposite figure :**

$\Delta ABC \sim \Delta CDH$, $BC = \frac{1}{2} DH$

, then $x \times y$ = ...

(a) 3 (b) 6

(c) 8 (d) 10



2021 Exam (1) Question (13)

174 If the ratio between the length of two corresponding sides of two similar polygons 3 : 5

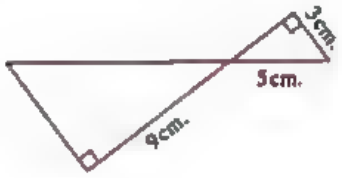
, then the area of greatest polygon = ... the area of the smallest polygon.

(a) $\frac{9}{25}$ (b) $\frac{25}{9}$ (c) $\frac{3}{5}$ (d) $\frac{5}{3}$

2021 Exam (9) Question (22)

175 **In the opposite figure :**

$\frac{\text{The area of the smaller triangle}}{\text{The area of the greater triangle}} = \frac{\dots\dots\dots}{\dots\dots\dots}$



(a) $\frac{25}{81}$ (b) $\frac{1}{3}$

(c) $\frac{16}{81}$ (d) $\frac{9}{64}$

2021 Exam (8) Question (22)

176 The ratio between perimeter of two similar polygons is 4 : 9 , then the ratio between their areas is .....

(a) 4 : 9 (b) 9 : 4 (c) 16 : 81 (d) 2 : 3

2021 Exam (2) Question (23)

177 If $\Delta ABC \sim \Delta LMN$ and AB = 2 LM , then $\frac{\text{area of } \Delta LMN}{\text{area of } \Delta ABC} = \dots\dots\dots$

(a) $\frac{1}{2}$ (b) 2 (c) $\frac{1}{4}$ (d) 4

2021 Exam (5) Question (10)

178 Two similar triangles , its areas 13 cm^2 and 52 cm^2 , then the ratio between the lengths of two corresponding sides is .....

(a) 1 : 4 (b) 1 : 2 (c) 1 : 5 (d) 2 : 1

2021 Exam (8) Question (30)

179 Two similar polygons , the ratio between their areas is 4 : 25 , then the ratio between their perimeters is .....

(a) 2 : 5 (b) 5 : 2 (c) 4 : 5 (d) 8 : 50

2021 Exam (1) Question (29)

180 If the ratio between the lengths of the diagonals of two squares is 2 : 5 and the area of the smaller square is 4 cm^2 , then the area of the greater square = ... cm^2

(a) 25 (b) 16 (c) 10 (d) 20

2021 Exam (4) Question (16)

181 A piece of land of the shape of rectangle its dimensions are 6 m. , 9 m. If we want to double its area by increasing each of the two dimensions by the same value , then the added value equals ..... m.

(a) 3 (b) 5 (c) 7 (d) 9

2021 Exam (4) Question (11)

182 The ratio between the length of diameters of two circles is 3 : 5 , if the area of greater circle = 75 cm^2 , then the area of smaller circle = ... cm^2

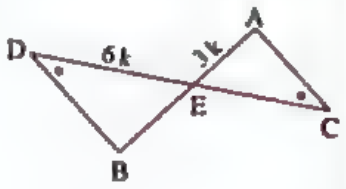
(a) 81 (b) 27 (c) 25 (d) 125

2021 Exam (8) Question (19)

183 **In the opposite figure :**

$\overline{AB} \cap \overline{CD} = \{E\}$, a (Δ ACE) = 100 cm^2

, then a (Δ DEB) = ... cm^2



(a) 1296 (b) 1080

(c) 750 (d) 400

2021 Exam (3) Question (25)

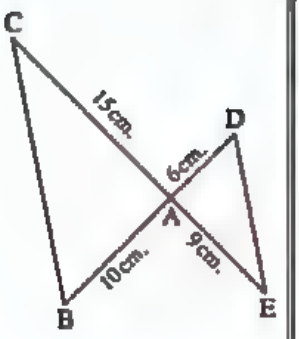
184 **In the opposite figure :**

$\overline{DB} \cap \overline{EC} = \{A\}$, AE = 9 cm.

, AB = 10 cm. , AC = 15 cm. , DA = 6 cm.

, area (Δ ADE) = 36 cm^2

, then area (Δ ABC) = ... cm^2



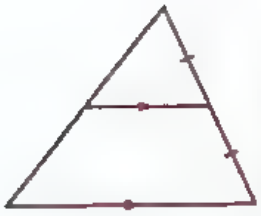
(a) 60 (b) 75

(c) 100 (d) 225

2021 Exam (9) Question (36)

185 **In the opposite figure :**

If the area of the smaller triangle = 16 cm^2 , then the area of the greater triangle = ... cm^2



(a) 32 (b) 8

(c) 64 (d) 24

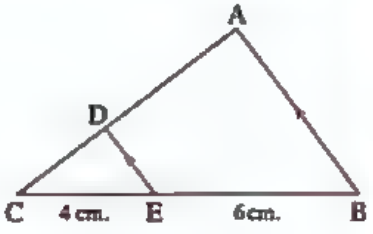
2021 Exam (8) Question (18)

186 **In the opposite figure :**

If $\overline{ED} // \overline{BA}$, BE = 6 cm. , EC = 4 cm.

, the area of the figure ABED = 42 cm^2

, then the area of Δ CED = ... cm^2



(a) 16 (b) 10 (c) 8 (d) 20

2021 Exam (6) Question (30)

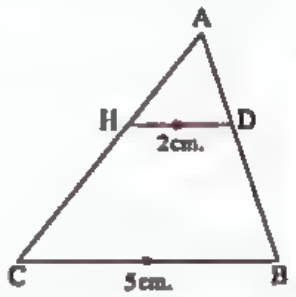
187 **In the opposite figure :**

If the area of triangle ADH = 24 cm^2 , $\overline{DH} // \overline{BC}$

, then the area of the shape DBCH = ... cm^2

(a) 36 (b) 126

(c) 136 (d) 100



2021 Exam (1) Question (10)

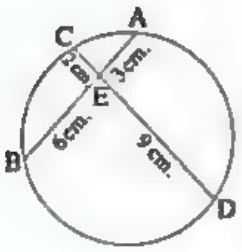
188 **In the opposite figure :**

If $\overline{AB} \cap \overline{CD} = \{E\}$, AE = 3 cm. , CE = 2 cm.

, BE = 6 cm. , then ED = ... cm.

(a) 9 (b) 8

(c) 7 (d) 6



2021 Exam (6) Question (16)

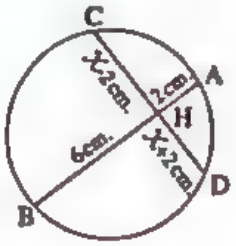
189 **In the opposite figure :**

AH = 2 cm. , BH = 6 cm. , DH = $(\mathcal{X}+2)$ cm.

, HC = $(\mathcal{X}-2)$ cm. , then $\mathcal{X}$ = ... cm.

(a) 6 (b) 2

(c) 4 (d) 10



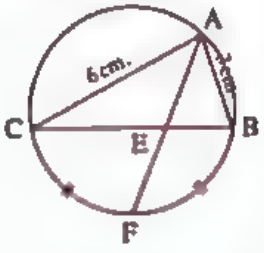
2021 Exam (1) Question (14)

190 **In the opposite figure :**

$\frac{BE}{EC}$ = ...

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$

(c) $\frac{3}{4}$ (d) $\frac{3}{5}$



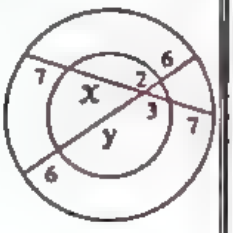
2021 Exam (2) Question (36)

191 **In the opposite figure :**

$(\mathcal{X}$, y) = ...

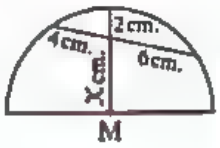
(a) (11 , 16.5) (b) (11 , 15.5)

(c) (12 , 16.5) (d) (12 , 15.5)



2021 Exam (3) Question (28)

192 **In the opposite figure :**



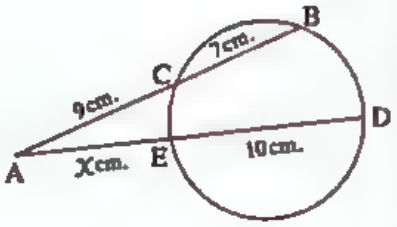
M is a centre of semicircle

, then X = ... cm.

(a) 5 (b) 7 (c) 8 (d) 12

2021 Exam (7) Question (10)

193 **In the opposite figure :**



If $\overline{AB} \cap \overline{AD} = \{A\}$, ED = 10 cm.

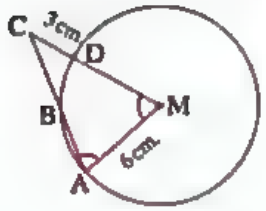
, AC = 9 cm. , CB = 7 cm.

, then the value of X = ... cm.

(a) 5 (b) 6 (c) 7 (d) 8

2021 Exam (6) Question (39)

194 **In the opposite figure :**



If the length of the radius of a circle of center M is 6 cm.

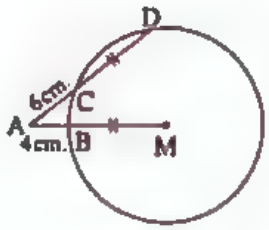
, CD = 3 cm. , m (∠ A) = m (∠ M) , AM = 6 cm.

, then CB = ... cm.

(a) 3 (b) 4 (c) 5 (d) 6

2021 Exam (6) Question (37)

195 **In the opposite figure :**



If CD = BM , then the circumference of

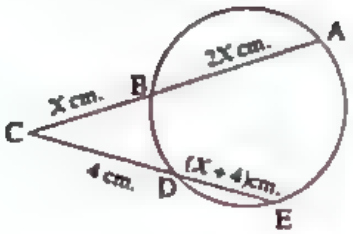
the circle M = ... cm.

(a) 15 π (b) 18 π

(c) 20 π (d) 24 π

2021 Exam (4) Question (21)

196 **In the opposite figure :**



X = ... cm.

(a) 6 (b) 5

(c) 4 (d) 3

2021 Exam (3) Question (27)

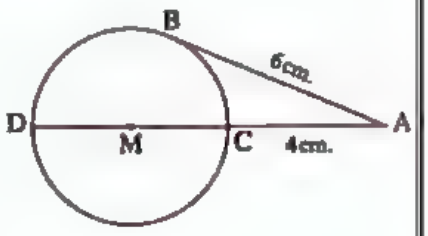
197 **In the opposite figure :**

If $\overline{AB}$ is a tangent to the circle M

, then area of the circle = ... cm^2

(a) 6.25π (b) 62.5π

(c) 25π (d) 10π



2021 Exam (1) Question (8)

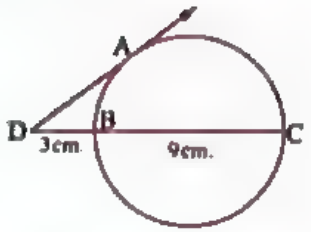
198 **In the opposite figure :**

$\overline{DA}$ is a tangent to the circle at A

, then the length of $\overline{AD}$ = ... cm.

(a) $6\frac{1}{4}$ (b) $8\frac{1}{4}$

(c) 6 (d) 7



2021 Exam (3) Question (23)

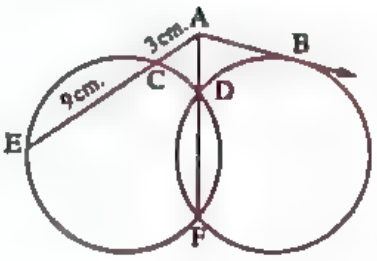
199 **In the opposite figure :**

If AC = 3 cm. , CE = 9 cm.

, then AB = ... cm.

(a) 27 (b) 36

(c) 9 (d) 6



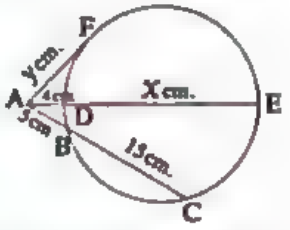
2021 Exam (7) Question (16)

200 **In the opposite figure :**

$x + y$ = ... cm.

(a) 9 (b) 18

(c) 22 (d) 31



2021 Exam (2) Question (28)

201 **In the opposite figure :**

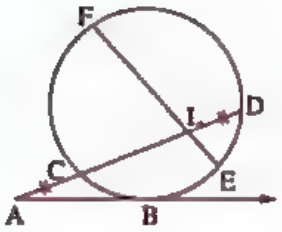
$\overline{AB}$ is a tangent to the circle at B , FL = 10 cm.

, LE = 3.2 cm. , CL = 8 cm. and AB = x cm.

, then x = ... cm.

(a) 8 (b) 4

(c) 6 (d) 10



2021 Exam (3) Question (26)

202

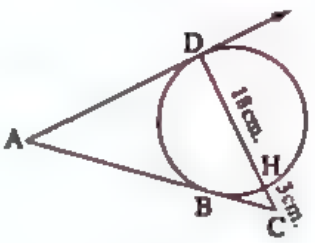
In the opposite figure :

$\overrightarrow{AD}$, $\overrightarrow{AB}$ two tangents at D , B

, $\overline{CH}$ cuts the circle at H , D

if CH = 3 cm. , HD = 18 cm.

, then AC – AD = ... cm.



(a) $\sqrt{7}$ (b) $2\sqrt{7}$ (c) $3\sqrt{7}$ (d) $6\sqrt{7}$

2021 Exam (4) Question (24)

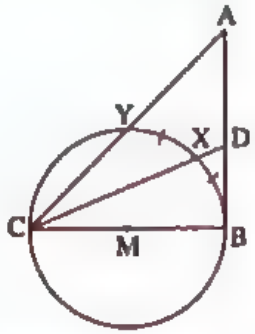
203

In the opposite figure :

$\overline{AB}$ is a tangent to circle M at B

, $m(\widehat{BX}) = m(\widehat{XY})$, BD = $2\sqrt{3}$ cm.

, AD = $4\sqrt{3}$ cm. , then AY = ... cm.



(a) 3 (b) 6

(c) 9 (d) 12

2021 Exam (9) Question (40)

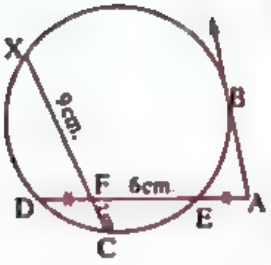
204

In the opposite figure :

$\overrightarrow{AB}$ is a tangent to the circle at B

, AE = FD , EF = 6 cm. , CF = 2 cm.

, XF = 9 cm. , then AB = ... cm.



(a) 3 (b) 6

(c) 9 (d) 12

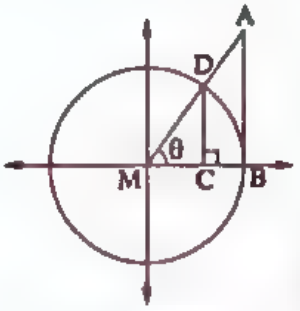
2021 Exam (2) Question (24)

205

In the opposite figure :

A unit circle M and $\overline{AB}$ is a tangent to the circle at B

, $\overline{CD} \perp \overline{MB}$, then $\frac{AB}{CD}$ = ...



(a) sec θ (b) cos θ

(c) tan θ (d) cosec θ

2021 Exam (5) Question (16)

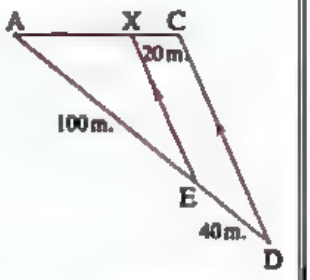
206

In the opposite figure :

The length of $\overline{AX}$ = ... meter.

(a) 60 (b) 50

(c) 40 (d) 30



2021 Exam (10) Question (5)

207

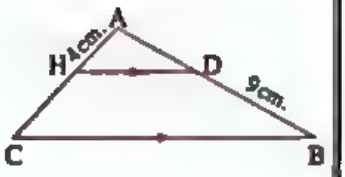
In the opposite figure :

AD = HC , $\overline{DH}$ // $\overline{BC}$, AH = 4 cm. , BD = 9 cm.

, then AC = ... cm.

(a) 4 (b) 9

(c) 10 (d) 13



2021 Exam (1) Question (23)

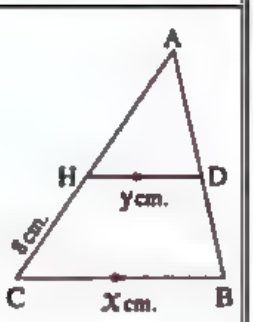
208

In the opposite figure :

If $\frac{x-y}{x+y} = \frac{2}{7}$, then AH = ... cm.

(a) 16 (b) 15

(c) 12 (d) 10



2021 Exam (4) Question (19)

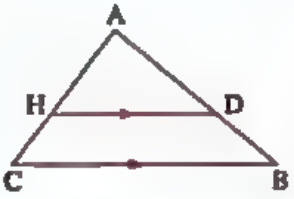
209

In the opposite figure :

$\overline{HD}$ // $\overline{CB}$, $\frac{AD}{BD} = \frac{5}{3}$, then $\frac{AB}{BD}$ = ...

(a) $\frac{3}{5}$ (b) $\frac{8}{3}$

(c) $\frac{3}{8}$ (d) $\frac{5}{8}$



2021 Exam (4) Question (27)

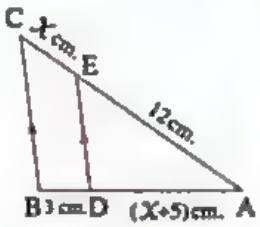
210

In the opposite figure :

If $\overline{DE}$ // $\overline{BC}$, EA = 12 cm. , BD = 3 cm.

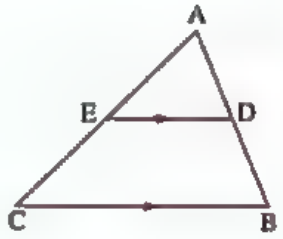
, DA = (x + 5) cm. , CE = x cm.

, then the value of x = ... cm.



2021 Exam (6) Question (25)

211 In the opposite figure :



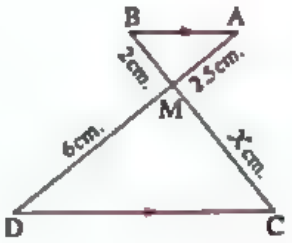
All of the following geometrical relations are correct except :

(a) $\frac{AD}{DB} = \frac{AE}{EC}$ (b) $\frac{AD}{DB} = \frac{DE}{BC}$

(c) $\frac{AD}{AB} = \frac{AE}{AC}$ (d) $\frac{BD}{BA} = \frac{CE}{CA}$

2021 Exam (3) Question (37)

212 In the opposite figure :



$\overline{AB} // \overline{CD}$, AM = 2.5 cm. , BM = 2 cm. , MD = 6 cm.

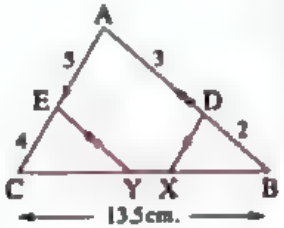
, then X = ... cm.

(a) 3.6 (b) 4

(c) 4.2 (d) 4.8

2021 Exam (5) Question (29)

213 In the opposite figure :



$\overline{DX} // \overline{AC}$, $\overline{EY} // \overline{AB}$, BC = 13.5 cm. , $\frac{AD}{DB} = \frac{3}{2}$ and $\frac{EC}{AE} = \frac{4}{5}$

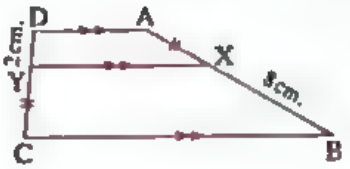
, then XY = ... cm.

(a) 2.1 (b) 2.3

(c) 2.4 (d) 2.6

2021 Exam (3) Question (30)

214 In the opposite figure :



If $\overline{AD} // \overline{XY} // \overline{BC}$, AX = YC , XB = 8 cm.

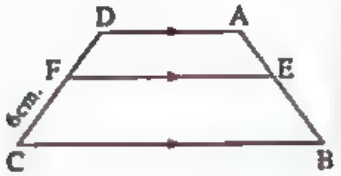
, DY = 2 cm. , then AX = ... cm.

(a) 2 (b) 4

(c) 16 (d) 8

2021 Exam (8) Question (23)

215 In the opposite figure :



$\frac{AE}{EB} = \frac{2}{3}$, FC = 6 cm.

, then DF = ... cm.

(a) 4 (b) 5 (c) 6 (d) 7

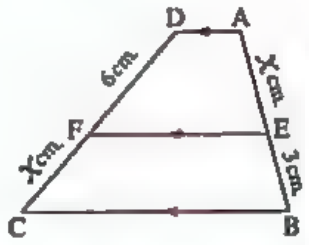
2021 Exam (2) Question (34)

216 In the opposite figure :

X = ... cm.

(a) 6 (b) $3\sqrt{2}$

(c) $3\sqrt{3}$ (d) 18



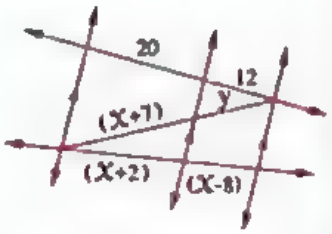
2021 Exam (7) Question (11)

217 In the opposite figure :

$X - y$ = ... cm.

(a) 5 (b) 6

(c) 4 (d) 7



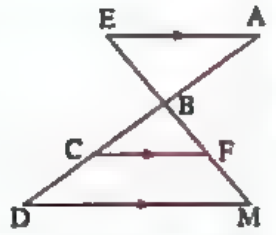
2021 Exam (3) Question (31)

218 In the opposite figure :

AB : BC : CD = ...

(a) AE : FC : MD (b) EB : BF : FM

(c) EB : EF : EM (d) EB : BC : CD



2021 Exam (10) Question (8)

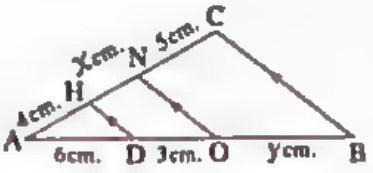
219 In the opposite figure :

$\overline{DH} // \overline{ON}$, CN = 5 cm. , OD = 3 cm.

, AD = 6 cm. , AH = 4 cm. , NH = X cm.

, BO = y cm. , then $X + y$ = ... cm.

(a) 9.5 (b) 7.5 (c) 8.5 (d) 10



2021 Exam (1) Question (30)

220 The exterior bisector of the vertex of isosceles triangle is ..... to the base.

(a) perpendicular (b) bisects (c) parallel (d) equal

2021 Exam (10) Question (11)

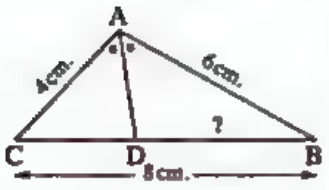
221 In the opposite figure :

$\overline{AD}$ bisects ∠ BAC , AB = 6 cm. , AC = 4 cm.

, BC = 8 cm. , then BD = ... cm.

(a) 4.8 (b) 8.4

(c) 3.2 (d) 5



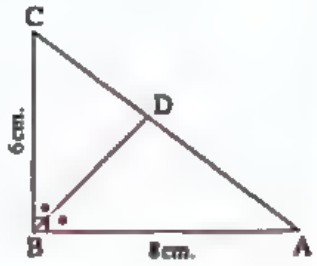
2021 Exam (8) Question (27)

222 In the opposite figure :

AD = ... cm.

(a) $5\frac{5}{7}$ (b) $6\frac{3}{4}$

(c) 5 (d) $\frac{4}{3}$



2021 Exam (4) Question (30)

223 In the opposite figure :

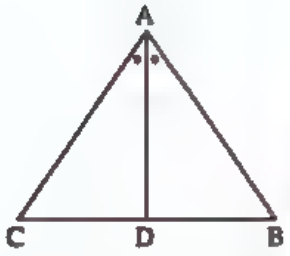
The length of $\overline{AD}$ = ...

(a) $\sqrt{AB \times AC - BD \times DC}$

(b) $(AB)^2 + (AC)^2 - BD \times DC$

(c) $AB + AC - BD \times DC$

(d) $\sqrt{AB \times AC + BD \times DC}$



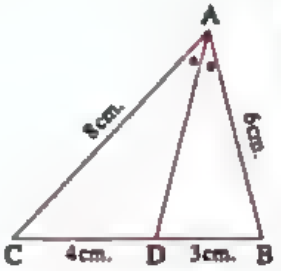
2021 Exam (10) Question (21)

224 In the opposite figure :

AD = ... cm.

(a) $\sqrt{60}$ (b) 6

(c) 7 (d) $\sqrt{12}$



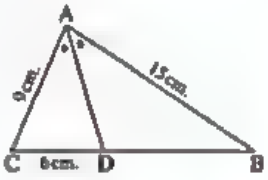
2021 Exam (2) Question (29)

225 In the opposite figure :

If $\overline{AD}$ bisects ∠ A , AB = 15 cm. , AC = 9 cm.

, CD = 6 cm. , then AD = ... cm.

(a) $5\sqrt{3}$ (b) 5 (c) 3 (d) 4



2021 Exam (6) Question (36)

226 In the opposite figure :

BD = 6 cm. , DC = 10 cm. and AC – AB = 6 cm.

, then AC = ... cm.

(a) 13 (b) 14

(c) 15 (d) 16

2021 Exam (5) Question (17)

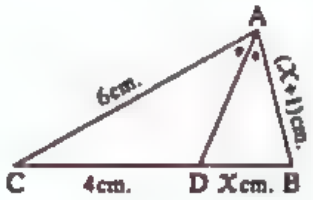
227

In the opposite figure :

If $\overrightarrow{AD}$ bisects $\angle A$, AC = 6 cm.

, DC = 4 cm. , BD = x cm. , AB = $(x + 1)$ cm.

, then x = ...



(a) 3 (b) 4

(c) 2 (d) 1

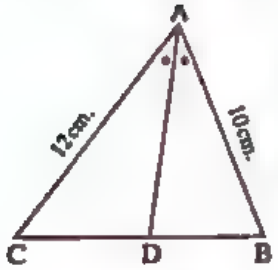
2021 Exam (1) Question (24)

228

In the opposite figure :

ΔABC in which AB = 10 cm. , AC = 12 cm.

, $\overrightarrow{AD}$ bisects $\angle A$, then BD ..... DC



(a) > (b) <

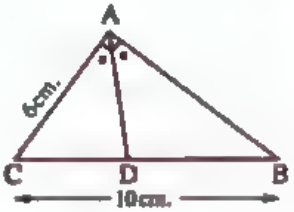
(c) = (d) $\frac{1}{2}$

2021 Exam (1) Question (15)

229

In the opposite figure :

If $\overline{AB} \perp \overline{AC}$, then $\frac{CD}{DB}$ = ...



(a) $\frac{4}{3}$ (b) $\frac{4}{5}$

(c) $\frac{3}{4}$ (d) $\frac{5}{4}$

2021 Exam (10) Question (26)

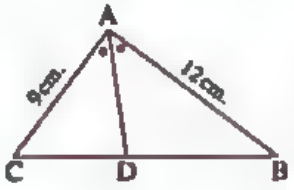
230

In the opposite figure :

If the perimeter of the triangle ABC = 28 cm.

, AB = 12 cm. , AC = 9 cm. , $\overrightarrow{AD}$ bisects $\angle BAC$

, then BD × DC = ... cm^2



(a) 9 (b) 12 (c) 7 (d) 16

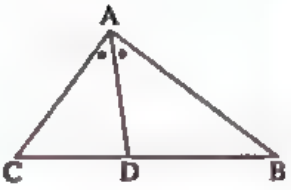
2021 Exam (1) Question (9)

231

In the opposite figure :

If $\overrightarrow{AD}$ bisects $\angle A$

, then AB × CD = ...



(a) AC × BD (b) $(AD)^2$ (c) AD × BD (d) AC × AB

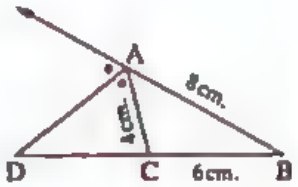
2021 Exam (10) Question (10)

232 **In the opposite figure :**

DC = ... cm.

(a) 2 (b) 4

(c) 6 (d) 8



2021 Exam (4) Question (13)

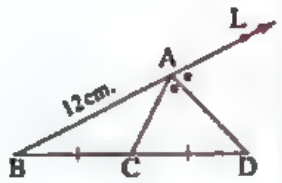
233 **In the opposite figure :**

C is the midpoint of $\overline{BD}$, AB = 12 cm. , $\overrightarrow{AD}$ bisects ∠ LAC

, then AC = ... cm.

(a) 3 (b) 4

(c) 6 (d) 8



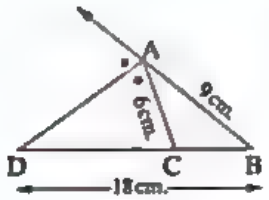
2021 Exam (5) Question (23)

234 **In the opposite figure :**

AD = ... cm.

(a) $9\sqrt{2}$ (b) 8

(c) $5\sqrt{6}$ (d) $3\sqrt{6}$



2021 Exam (3) Question (32)

235 **In the opposite figure :**

The area of Δ ABD = ... cm^2

(a) 36 (b) 48

(c) 54 (d) 72

2021 Exam (7) Question (9)

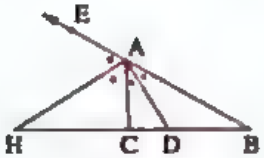
236 **In the opposite figure :**

If $\overrightarrow{AD}$ bisects ∠ BAC and $\overrightarrow{AH}$ bisects ∠ EAC

, then $\frac{BD}{DC}$ = ...

(a) $\frac{BH}{HC}$ (b) $\frac{BD}{DH}$

(c) $\frac{AH}{AC}$ (d) $\frac{AB}{AH}$



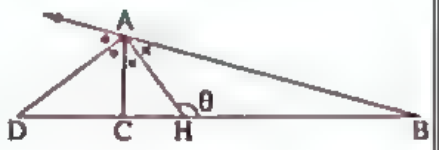
2021 Exam (1) Question (40)

237 In the opposite figure :

AD = 8 cm. , AH = 6 cm. , then tan θ = ...

(a) $\frac{-4}{3}$ (b) $\frac{-3}{4}$

(c) $\frac{3}{4}$ (d) $\frac{4}{3}$



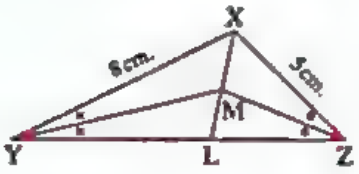
2021 Exam (4) Question (34)

238 In the opposite figure :

8 LZ = ... LY

(a) 5 (b) 3

(c) 13 (d) 2



2021 Exam (3) Question (34)

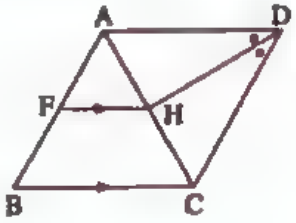
239 In the opposite figure :

$\overline{DH}$ bisects ∠ D , $\overline{HF}$ // $\overline{CB}$

, then $\frac{AF}{FB}$ = ...

(a) $\frac{HF}{CB}$ (b) $\frac{CH}{HA}$

(c) $\frac{CD}{DA}$ (d) $\frac{AD}{DC}$



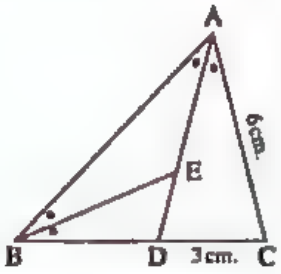
2021 Exam (1) Question (18)

240 In the opposite figure :

$\frac{AE}{ED}$ = ...

(a) 2 (b) 3

(c) $\frac{2}{3}$ (d) $\frac{1}{2}$



2021 Exam (9) Question (37)

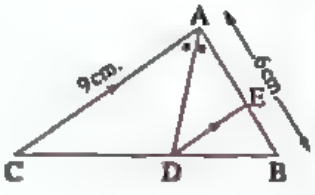
241 In the opposite figure :

$\overline{AD}$ bisects ∠ BAC , $\overline{ED}$ // $\overline{AC}$, AC = 9 cm.

, AB = 6 cm. , then AE = ... cm.

(a) 3.6 (b) 2.4

(c) 3.2 (d) 5



2021 Exam (6) Question (21)

242 The diameter of circle M is 6 cm. , $P_M(B) = zero$, then B lies .....

(a) inside the circle. (b) outside the circle.

(c) on the circle. (d) at the center of the circle.

2021 Exam (7) Question (17)

243 If C is a point in the plane of the circle M and $P_M(C) = -8$, then the point C lies .....

(a) one the circle. (b) inside the circle

(c) outside the circle. (d) on the center of the circle.

2021 Exam (8) Question (29)

244 If $P_M(A) = r$, then the point A lies ..... the circle.

(a) on (b) outside (c) inside (d) on the centre

2021 Exam (9) Question (24)

245 If AM = 12 cm. , r = 9 cm. , where A is a point outside the circle M , then $P_M(A) =$ ..... cm.

(a) 65 (b) 63 (c) 49 (d) 7

2021 Exam (7) Question (4)

246 If the distance between a point and the centre of a circle equals 10 cm. and the power of this point with respect to the circle equals 64 , then the radius length of this circle equals ..... cm.

(a) 8 (b) 6 (c) 7 (d) 9

2021 Exam (6) Question (9)

247 If $P_M(A) = 81$ and $\overline{AB}$ is a tangent of the circle M , then AB = ... cm.

(a) 18 (b) 9 (c) 6 (d) 36

2021 Exam (1) Question (34)

248 If M is a circle with diameter length 12 cm. , A is a point in its plane and the power of the point A with respect to the circle M equals 13 cm. , then MA = ... cm.

(a) 7 (b) 14 (c) 3.5 (d) 6

2021 Exam (4) Question (36)

249 If A is a point in the plane of circle M and MA = 6 cm. and $P_M(A) = -13$, then the area of the circle M = ... cm^2 , $\left(\pi = \frac{22}{7}\right)$

(a) 154 (b) 44 (c) 144 (d) 7

2021 Exam (4) Question (38)

250

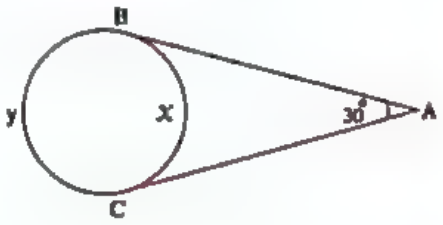
In the opposite figure :

$\overrightarrow{AB}$, $\overrightarrow{AC}$ are two tangents to the circle

, $m(\angle A) = 30°$, then $y - x =$ ..... rad

(a) π (b) $\frac{\pi}{2}$

(c) $\frac{\pi}{3}$ (d) 2π



2021 Exam (1) Question (19)

251

In the opposite figure :

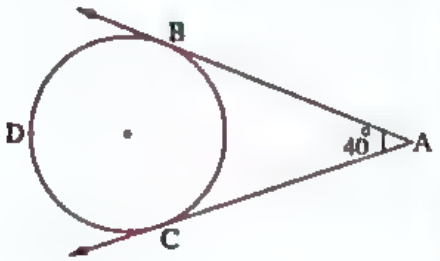
$\overrightarrow{AB}$, $\overrightarrow{AC}$ are two tangents of the circle

, $m(\angle A) = 40°$, $m(\overset{\frown}{BDC}) = 4x°$

, then value of $x =$ .....°

(a) 110 (b) 55

(c) 25 (d) 50



2021 Exam (9) Question (23)

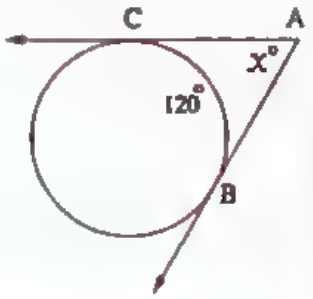
252

In the opposite figure :

If $m(\overset{\frown}{BC}) = 120°$, then $x =$ .....°

(a) 80 (b) 60

(c) 240 (d) 120



2021 Exam (10) Question (14)

253

In the opposite figure :

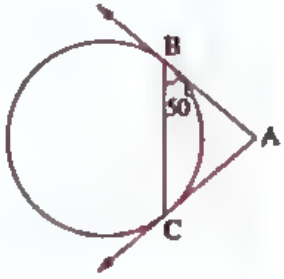
$\overrightarrow{AB}$, $\overrightarrow{AC}$ are two tangents to the circle

, $m(\angle ABC) = 50°$, then the measure

of the major $(\overset{\frown}{BC})$ = ...°

(a) 200 (b) 260

(c) 160 (d) 80



2021 Exam (1) Question (25)

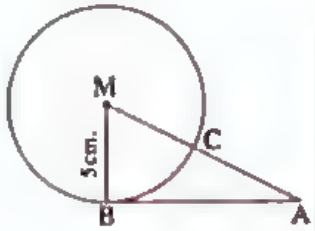
254 In the opposite figure :

If $P_M(A) = 144$, BM = 5 cm.

, then AC = ... cm.

(a) 18 (b) 8

(c) 12 (d) 16



2021 Exam (1) Question (35)

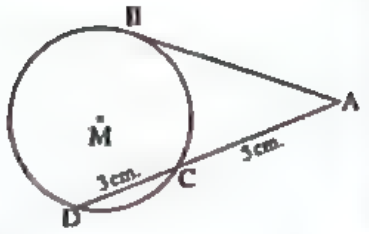
255 In the opposite figure :

$\overline{AB}$ is a tangent to the circle at B , DC = 3 cm.

, CA = 5 cm. , then $P_M(A)$ = ...

(a) 25 (b) $(AB)^2 - r^2$

(c) 40 (d) $(AM)^2 - (AB)^2$



2021 Exam (5) Question (27)

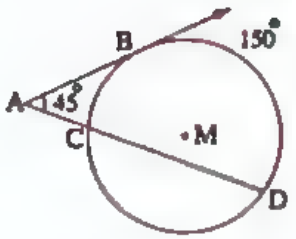
256 In the opposite figure :

$\overline{AB}$ is a tangent to the circle M at B , $m(\angle A) = 45°$

, $m(\overset{\frown}{BD}) = 150°$, then $m(\overset{\frown}{BC})$ = ...°

(a) 120 (b) 90

(c) 60 (d) 180



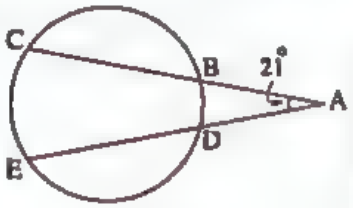
2021 Exam (5) Question (21)

257 In the opposite figure :

$m(\angle A) = 21°$, then $m(\overset{\frown}{CE}) - m(\overset{\frown}{BD})$ = ...°

(a) 41 (b) 21

(c) 42 (d) 44



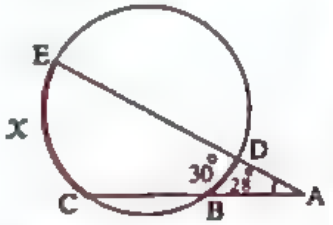
2021 Exam (8) Question (25)

258 In the opposite figure :

X = ...

(a) 30° (b) 60°

(c) 86° (d) 26°

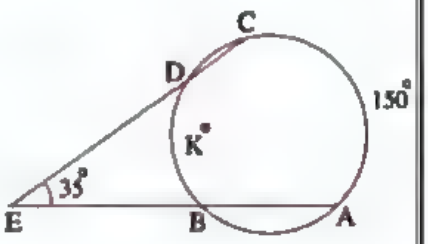


2021 Exam (7) Question (8)

259 In the opposite figure :

If $\overline{AE} \cap \overline{CE} = \{E\}$, $m(\angle E) = 35°$

, then K = ...°



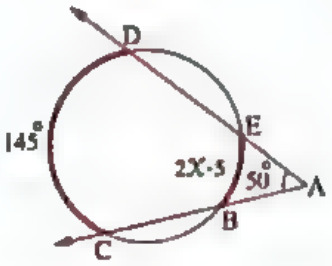
(a) 100 (b) 60

(c) 80 (d) 90

2021 Exam (6) Question (12)

260 In the opposite figure :

X = ...°



(a) 50 (b) 70

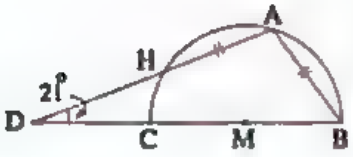
(c) 100 (d) 25

2021 Exam (2) Question (40)

261 In the opposite figure :

$\overline{BC}$ is a diameter in circle M , $m(\angle D) = 21°$

, AB = AH , then $(\angle A)$ = ...



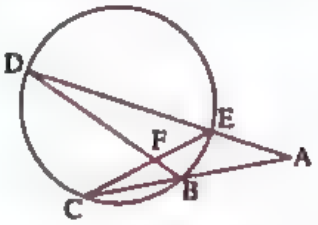
(a) 100° (b) 104°

(c) 106° (d) 110°

2021 Exam (4) Question (40)

262 In the opposite figure :

$m(\angle DFC) + m(\angle A)$ = ...



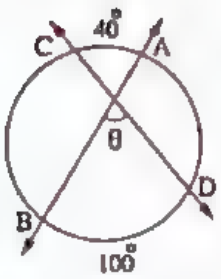
(a) $m(\overset{\frown}{DC})$ (b) $2\ m(\overset{\frown}{DC})$

(c) $m(\overset{\frown}{EB})$ (d) $2\ m(\overset{\frown}{EB})$

2021 Exam (3) Question (39)

263 In the opposite figure :

θ = ...°



(a) 50 (b) 60

(c) 70 (d) 140

2021 Exam (4) Question (37)

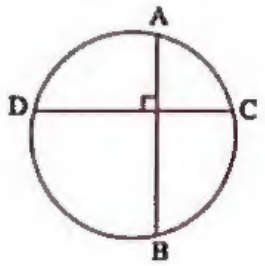
264

In the opposite figure :

If $\overline{AB} \perp \overline{DC}$, then m $(\overset{\frown}{AC})$ + m $(\overset{\frown}{BD})$ = ...

(a) 45°　　(b) 90°

(c) 180°　　(d) 270°



2021 Exam (5) Question (30)

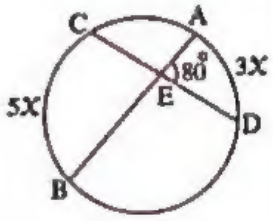
265

In the opposite figure :

x = ...°

(a) 10　　(b) 20

(c) 30　　(d) 40



2021 Exam (7) Question (13)

Solutions

1	C	21	D	41	B	61	A	81	B
2	A	22	D	42	A	62	C	82	B
3	C	23	C	43	D	63	B	83	D
4	C	24	B	44	A	64	C	84	D
5	D	25	C	45	C	65	A	85	D
6	A	26	D	46	D	66	C	86	B
7	A	27	A	47	C	67	D	87	D
8	C	28	C	48	B	68	C	88	D
9	C	29	C	49	A	69	C	89	D
10	C	30	C	50	B	70	C	90	C
11	D	31	A	51	C	71	D	91	B
12	B	32	C	52	B	72	D	92	D
13	C	33	C	53	A	73	B	93	B
14	A	34	C	54	B	74	A	94	B
15	A	35	B	55	B	75	B	95	D
16	A	36	A	56	C	76	B	96	B
17	D	37	B	57	B	77	A	97	D
18	A	38	D	58	B	78	A	98	B
19	C	39	D	59	D	79	B	99	D
20	B	40	C	60	C	80	A	100	A

101	A
102	A
103	C
104	B
105	B
106	C
107	C
108	A
109	A
110	B
111	C
112	D
113	C
114	B
115	A
116	B
117	A
118	B
119	A
120	B

121	D
122	B
123	A
124	A
125	D
126	D
127	D
128	D
129	D
130	D
131	B
132	A
133	C
134	C
135	A
136	A
137	A
138	A
139	B
140	A

141	C
142	B
143	D
144	A
145	C
146	C
147	D
148	B
149	A
150	D
151	C
152	A
153	C
154	D
155	C
156	D
157	D
158	D
159	D
160	D

161	D
162	A
163	A
164	A
165	C
166	A
167	B
168	C
169	C
170	D
171	A
172	D
173	C
174	B
175	B
176	C
177	C
178	B
179	A
180	A

181	A
182	B
183	D
184	C
185	C
186	C
187	B
188	A
189	A
190	A
191	A
192	A
193	D
194	C
195	C
196	C
197	A
198	C
199	D
200	D

201	A
202	C
203	C
204	B
205	C
206	B
207	C
208	D
209	B
210	D
211	B
212	D
213	A
214	D
215	A
216	B
217	A
218	B
219	A
220	C

221	A
222	A
223	A
224	B
225	A
226	C
227	C
228	B
229	C
230	B
231	A
232	C
233	C
234	A
235	D
236	A
237	A
238	A
239	D
240	A

241	B
242	C
243	B
244	B
245	B
246	B
247	B
248	A
249	A
250	C
251	B
252	B
253	B
254	B
255	C
256	C
257	C
258	C
259	C
260	D

261	C
262	A
263	C
264	C
265	B